

## **REGULATION III – CONTROL OF AIR CONTAMINANTS**

### **RULE 352**

### **GASOLINE DELIVERY VESSEL TESTING AND USE**

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**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS**

**REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 352  
GASOLINE DELIVERY VESSEL TESTING AND USE**

**SECTION 100 – GENERAL**

- 101 PURPOSE:** To limit emissions of volatile organic compounds (VOC) from gasoline delivery vessels.
- 102 APPLICABILITY:** This rule applies to any gasoline delivery vessel which is used to receive or deliver gasoline within Maricopa County, and to all persons who own, operate, maintain, repair, or test such a vessel.

**SECTION 200 – DEFINITIONS:** For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

- 201 2-POINT SYSTEM:** A fill pipe and a vapor-recovery pipe pair which are in close proximity to one another and are connected directly to and emerge directly above the tank they serve.
- 202 EXCESS GASOLINE DRAINAGE:** More than 10 milliliters (2 teaspoonsful) of liquid gasoline lost in the process of connecting or disconnecting a gasoline delivery hose, or any quantity of gasoline lost during those processes that wets any area(s) on the ground having an aggregate area greater than 113 square inches, or the perimeter of which would encompass a circle of 12 inches (30.5 cm) diameter.
- 203 GASOLINE:** Any petroleum distillate or blend of petroleum distillate with other combustible liquid(s), such as alcohol, that is used as a fuel for internal combustion engines and has a Reid vapor pressure between 4.0 and 14.7 psi (200–760 mm Hg.) For the purposes of this rule, liquefied petroleum gas (LPG) is excluded.
- 204 GASOLINE DELIVERY VESSEL:** Any vehicular-mounted container such as a tanker truck, tank trailer, cargo tank or any other wheel-mounted container used to transport gasoline. This includes any hoses the vessel carries through which deliveries must be made.

- 205    **GASOLINE VAPORS:** Vapors, originating from liquid gasoline, that are usually found in mixture with air. Included are any droplets of liquid gasoline or of gasoline-vapor condensate that are entrained by the vapor.
- 206    **LEAK FREE:** Having no single gasoline leak of more than 3 drops per minute from a gasoline delivery vessel, including fill hose(s) and vapor hose(s), but not including the disconnecting or connecting of either a gasoline hose from a gasoline fill line or a vapor hose from a vapor line.
- 207    **MARICOPA COUNTY (MC) PRESSURE TEST:** The complete pressure, vacuum, and vapor-valve testing of a gasoline delivery vessel that is performed according to Maricopa County specifications as described in subsection 302.2 of this rule.
- 208    **PURGING:** Removing, cleaning, or scouring out gasoline vapors from all or a portion of a delivery vessel by active or passive means and emitting the vapors into the atmosphere.
- 209    **STAGE 1 VAPOR RECOVERY SYSTEM (VR SYSTEM):** Any piping, hoses, equipment, and/or devices which are used to collect, store, or process gasoline vapors displaced by the delivery of gasoline and also by the onloading of gasoline into a vapor laden delivery vessel.
- 210    **SWITCH LOADING:** Loading diesel fuel into a delivery vessel whose previous load was gasoline; or loading any liquid not subject to this rule into a delivery vessel whose previous load was gasoline.
- 211    **VAPOR TIGHT:** A condition in which a suitable detector at the site of (potential) leakage of vapor shows less than 10,000 ppmv when calibrated with methane; or the detector shows less than 1/5 LEL (lower explosive limit) subsequent to calibration with a gas specified by the manufacturer and is used according to the manufacturer's instructions.

## SECTION 300 – STANDARDS

### 301    **PREVENT LEAKS AND SPILLS:**

301.1    **Vessel Integrity:** In Maricopa County, no person shall store or transport gasoline in or otherwise use or operate any gasoline delivery vessel unless such vessel is designed and maintained to be vapor tight and leak free.

#### 301.2    **Onloading Measures:**

- a.    At any bulk loading rack, connect a vapor return hose before connecting any loading hose.
- b.    At a bulk plant, connect an additional vapor hose before connecting any additional loading hose, unless an assisted vapor return system is serving the vapor hose that is already connected.

- c. Use a bucket or other effective capture device to catch any liquid dripping during the connection or disconnection of both the loading hose from the truck and the vapor hose from the loading dock's vapor receiving pipe.

- (1) Either dispose of the captured liquid in a tank designated for that purpose, or use a receptacle or a material designed to absorb the liquid.

- (2) Any gasoline that escapes or spills must be collected and contained.

**301.3 Prevent Spills and Excess Drainage:** A driver/operator of a gasoline delivery vessel shall:

- a. Thoroughly drain a fill hose and a vapor recovery hose into the dispensing tank before disconnecting it from the tank's fittings.
- b. Connect and disconnect fill hoses and vapor recovery hoses in such a way as to prevent excess gasoline drainage (more than 2 teaspoonsful) from escaping from the hose in one connect/disconnect cycle.
- c. Spills and any gasoline that is deposited in or on an area other than within the dispensing tank shall be collected and contained. This can include, but is not limited to, the correct use of buckets and/or absorbent material designed for the purpose, and the correct disposal of the collected gasoline.

**301.4 Vapor Hose use Required at Retail Gas Stations:**

- a. A driver/operator shall not deliver gasoline to a dispensing tank at a retail gas station unless a vapor hose is first connected from the vessel to a vapor return-line serving the tank.
- b. No delivery shall be made to a retail tank if:
  - (1) it is not served by a vapor return, or
  - (2) if it has a locked cap that cannot be removed, or
  - (3) if broken fittings prevent correct connection of the vapor hose.

**301.5 Prevent Vapor Escape During Deliveries:** For gasoline dispensing tanks that are equipped with a Stage 1 vapor recovery system (VR System):

- a. During delivery, the vessel operator shall not remove the lid of a fill tube unless every other fill tube either has a lid fastened in place or a delivery hose connecting it to the delivery vessel.

- b. Connect a vapor recovery hose before connecting any gasoline delivery hose.
- c. Disconnect a delivery hose from a tank before disconnecting the vapor recovery hose.
- d. **Restriction on Multiple Connection:** A delivery vessel shall not simultaneously have more than one gasoline delivery hose connected, unless each delivery hose is connected to a dispensing tank's 2-point system that already has a vapor hose connecting it to the vessel.

**301.6 Vapor Recovery Systems Having Remote Vapor Return Lines:** If a delivery vessel's vapor hose is connected to a vapor return line that is not part of a 2-point system, then there shall not be more than one gasoline delivery hose connected to the vessel, and no other hoses connected to a fill tube; viz., no more than one compartment of the delivery vessel shall be emptied at a time.

**302 GASOLINE DELIVERY VESSEL LEAK TEST REQUIRED:** A gasoline delivery vessel shall first pass the MC Pressure Test before delivering or onloading gasoline within Maricopa County, and to continue, must pass the MC Pressure Test each year thereafter. This does not apply to loads that originate solely in another state, nor to loads originating in Maricopa County that are not delivered in Maricopa County.

**302.1 Testing:** The MC Pressure Test shall be performed according to subsection 302.2.

- a. Scheduling and notification of an initial test or annual retest shall be done in accordance with subsection 401.1 and subsection 401.3.
- b. A tester shall record the results of a Pressure Test according to the format in subsection 501.2.
- c. A valid Maricopa County Air Quality Department decal shall be affixed to the vessel consequent to passing the MC Pressure Test before the vessel may deliver or onload gasoline.
- d. An owner or operator of a delivery vessel shall comply with subsection 401.2 registration requirements to obtain a valid Maricopa County Air Quality Department decal after a successful MC Pressure Test.

**302.2 MC Pressure Test:** A vessel that is being MC Pressure Tested shall pass all 3 of the following pressure subtests, in the following order, and use the same vapor hose during the test as will be used for deliveries by that same unit:

- a. **Positive Pressure Subtest:** Lose no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when pressurized to a gauge pressure of 18 inches (45.7 cm) of water in 2 consecutive runs according to procedures

in subsections 5.1.1 through 5.2.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule; and

- b. Vapor Valve Subtest:** Lose no more than 5.0 inches (127 mm) of water column in 5.0 minutes, measured in the vapor system after the vessel compartments are first collectively pressurized to a gauge pressure of 18 inches (45.7 cm) of water and then the vapor valves are closed, per subsection 503.2 of this Rule 352; and
- c. Partial Vacuum Subtest:** Gain no more than 1.0 inch (25.4 mm) of water column in 5.0 minutes, when initially evacuated to a gauge pressure of 6 inches (15.2 cm) of water, in 2 consecutive runs, per subsections 5.3.1 through 5.3.7 of EPA Method 27, as incorporated by reference in Section 504 of this rule.
- d. Pressure Instability:** A subtest is invalidated if during either of the pressure subtests, more than 1/2 inch water pressure is gained, or if during the vacuum test the vacuum is increased by more than minus 1/2 inch.

**302.3** A vessel shall be repaired, retested, and pass all 3 subtests in the same testing period within 15 days of testing if it does not pass all 3 subtests of subsection 302.2 of this rule.

**303     DISPLAY A VALID DECAL:** Each gasoline delivery vessel shall clearly display a valid Maricopa County Air Quality Department decal that is permanently mounted near the front on the right (passenger) side of the vessel.

**304     PURGING PROHIBITED:**

**304.1** No person shall purge gasoline vapors into the atmosphere from a delivery vessel unless the following conditions are met:

- a.** VOC emissions shall be reduced at least 90% by weight, including capture and processing, by a control device having a Maricopa County Air Pollution Permit; and
- b.** Such purging shall be done only after all delivery valves are opened and any liquid gasoline outflow is captured in a container having an attached lid which is kept closed when not receiving or pouring gasoline.

**304.2** An operator of a delivery vessel shall not purge gasoline vapors from such vessel as a passive result of switch loading, except for vessels exempted by subsection 305.1.

**305     EXEMPTIONS:**

**305.1** A delivery vessel is exempt from pressure test requirements of Section 302 if all of the following conditions are met:

- a. The vessel was placed in operation before July 13, 1988; **and**
- b. The vessel transported gasoline within Maricopa County before January 1, 1998; **and**
- c. The vessel never loads at a gasoline terminal; **and**
- d. The vessel serves only farm tanks and/or those non-resale dispensing operations having a yearly throughput not exceeding 120,000 gallons of gasoline, verified by monthly records pursuant to subsection 501.1a; **and**
- e. The vessel either has a sticker affixed to it that indicates to a bulk plant operator that the vessel may be loaded in Maricopa County, or has an affidavit signed by an owner or officer of the operating company filed with the Maricopa County Air Quality Department, with a complete copy of the signed affidavit available in the vehicle for inspection by a bulk plant operator or the Control Officer.

**305.2** An operator of a delivery vessel exempted by subsection 305.1 is allowed to incidentally purge gasoline vapors from such vessel as a passive result of loading, or briefly when lids/ports must be open for inspection.

**305.3 Opening Hatches on Non-Exempt Vessels:**

- a. **Required by Rule:** Owners/operators, their contractors, and authorized government agents may open vapor containment equipment on a nonexempt gasoline delivery vessel while performing operations required by governmental agencies, but shall be restricted as follows, unless approved in advance by the Control Officer:
  - (1) Wait at least 3 minutes after unloading is complete and after a delivery vessel has stopped before opening its hatch or other vapor seal.
  - (2) Reclose hatch or other sealing device within 3 minutes of completing the required procedures.
  - (3) Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec), using a barrier if necessary.
- b. **Defueling:** Hatches of a delivery vessel may be open for monitoring to prevent overflow during the period that the vessel is receiving gasoline from a tank or other source, if so required by a local fire code or other ordinance.
- c. **Connecting Coaxial Fittings:** Requirements for first connecting a vapor hose before a gasoline delivery hose do not apply to coaxial VR connection fittings.

## SECTION 400 – ADMINISTRATIVE REQUIREMENTS

**401 TESTING:** Testing required by subsections 302.2a, b, and c shall be conducted by the owner or operator of the delivery vessel, or by a consultant, at the expense of the owner or operator. The Control Officer may at any time observe the tests. An owner or operator shall comply with the following provisions:

**401.1 Notification of Required Testing:** The owner, operator, or tester shall notify the Control Officer as follows for each vessel being tested to meet requirements of Section 302 or subsection 304.1 of this rule:

- a. Contact the Control Officer during normal business hours of the Department at least 4 hours prior to testing; and
- b. Give an estimated start time that is no more than 1 hour prior to actual start time;
- c. Except for weekend testing, the Control Officer shall be notified no more than 24 hours in advance of testing;
- d. For weekend testing, the notification shall be given, along with the date of testing, prior to 2 PM on Friday (or Thursday, if Friday is a County holiday);
- e. Give the location of the testing;
- f. Any testing that is performed in the 8 hour period between 9 PM and 5 AM is not valid for purposes of satisfying Section 302 requirements, except if the Control Officer gives specific, advance permission for a particular occasion.

**401.2 Registration:** To obtain a decal, do the following for each vessel that passes the required annual test:

- a. Assemble in 1 packet the following 3 items:
  - (1) A properly completed “APPLICATION FOR AIR POLLUTION VAPOR RECOVERY CERTIFICATION” (also called “The Application”),
  - (2) A properly completed copy of the Maricopa County Air Quality “Tank Truck Leak Certification Check List”, and
  - (3) The annual fee remittance. (The fee amount appears in Rule 280.)
- b. Send or convey this single packet to the Maricopa County Air Quality Department at the address on the top of the application.



- c. Upon receipt of these 3 properly completed items, a decal will be issued by the Control Officer.

#### **401.3 Expiration:**

- a. A decal that is issued to a vessel that passed its test in the 4-month period between March 1 through June 30 shall expire at 11:59 PM on June 30 of the following year.
- b. A decal that is issued to a vessel that passed its test in the period after June 30 of the previous year and before March 1 of the current year shall expire at 11:59 PM on June 30 of the year. For example, if the test is passed between July 1, 2000, through February 28, 2001, the decal expires on June 30, 2001.

#### **401.4 Loss:**

- a. An owner or operator shall notify the Control Officer immediately if a valid decal/sticker is lost, defaced, or destroyed.
- b. The Control Officer may require a demonstration of need for replacement.
- c. If Rule 280 so provides, the Control Officer may charge a fee for reissue or substitute issue of a lost, defaced, or destroyed decal/sticker, if the Control Officer determines that the Department is not at fault.

**402 TIME FRAME FOR INSTALLATION OF CONTROL DEVICE:** An owner or operator of a vessel testing operation who chooses to comply with the Section 304 purging provisions through the use of a control device shall submit by August 1, 1999, an application for a Maricopa County Air Pollution Control Permit and an Operation and Maintenance Plan for the control device. The device shall be fully functioning by May 1, 2000.

## **SECTION 500 – RECORDS AND MONITORING**

### **501 RECORDKEEPING AND REPORTING REQUIREMENTS:**

- 501.1** The owner or operator of a gasoline delivery vessel subject to this rule shall maintain records of all certification, testing, and repairs.
- a. Such records must be maintained in a legible, readily available condition for at least 5 years after the date the testing and repair is completed.
  - b. Upon verbal or written request by the Control Officer, or a designee of the Control Officer, records shall be provided within a reasonable time. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

**501.2** The records of the certification testing required by Section 302 must be recorded in both of the following documents: the “Application for Air Pollution Vapor Recovery Certification” and the “Tank Truck Leak Certification Check List”. Pressure and vacuum shall be recorded to no less than the nearest quarter inch or half-centimeter of water column. The minimum requirements for each of these 2 documents follow:

- a. For the “Application for Air Pollution Vapor Recovery Certification”:
  - (1) Owner's name and address.
  - (2) Tank ID number, the location of the test, the time of the test, and the date of the test.
  - (3) For the pressure subtest, 2 readings: the change in pressure (in inches H<sub>2</sub>O) for Run 1 and the change in pressure for Run 2.
  - (4) For the vapor-valve subtest (subsection 302.2b), 1 reading: the total change in pressure during the test.
  - (5) For the vacuum test, 2 readings: the total change in vacuum during Run 1 and the same for Run 2.
- b. The “Tank Truck Leak Certification Check List” (or its successor document) shall contain at least the following information:
  - (1) The same information required in subsections a(1) and a(2) of this subsection 501.2; **and**
  - (2) The time the subtest began, the initial pressure of the subtest, the finish time, the final pressure of the subtest, and the pressure change between the start and end of the subtest; the vessel's unit number, manufacturer's serial number, the tank capacity, whether the tank was purged of gasoline vapors, and the date of the next leakage test if the set of 3 subtests are not all passed.
  - (3) If the initial pressure test was not passed, one set of readings in the row “Initial Test”, also giving the elapsed time if the pressure reached zero before 5 minutes. For example, the row marked “Initial Test” will normally contain the results of the initial failed subtest if any repairs were made subsequent to any pressurization or evacuation of the tank.

**502 MONITORING FOR LEAKS:** The Control Officer may at any time monitor a delivery vessel, including the vapor collection system, for vapor and liquid leaks to ascertain if it is vapor tight and leak free. Leakage of vapor exceeding 1/5 of the lower explosive limit, or 10,000 ppm as methane, when performed according to subsection 504.4, shall be an exceedance of the vapor-tight standard of subsection 301.1.

**503 COMPLIANCE DETERMINATION:** When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

**503.1 Pressure and Vacuum Tests:** The subtests to determine compliance with subsection 302.2a and subsection 302.2c of this rule shall be performed according to EPA Method 27, except that the definition of gasoline shall be according to this Rule 352.

**503.2 Test of Internal Vapor Valves:** The test to determine compliance with subsection 302.2b shall be performed immediately after successfully passing the pressure subtest (pursuant to subsection 302.2a), without performing any intervening maintenance or repair on the vapor valves.

**503.3** Confirmation of a vapor leak detected on a vessel during onloading shall be determined by properly deploying a pressure tap adapter that conforms to Method 27 provisions, and demonstrating the leak according to subsection 504.4, while the pressure is less than 20 inches of water column.

**503.4** Pursuant to Section 203, Reid vapor pressure shall be determined using American Society for Testing and Materials (ASTM) Method D 323-90.

**504 TEST METHODS:** The EPA test method as it exists in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, is adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 504 are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, Arizona 85004.

**504.1** EPA Method 27 ("Determination Of Vapor Tightness Of Gasoline Delivery Tank Using Pressure-Vacuum Test") in 40 CFR 60, Appendix A.

**504.2** American Society for Testing and Materials (ASTM) Method D 323-90, 1990 (Reid vapor pressure).

**504.3 Test of Internal Vapor Valves:**

- a. Pressurize the delivery vessel to 18 inches (45.7 cm) of water column, using the first 2 procedures of the "Pressure Test" section of EPA Method 27.
- b. Close all the vessel's internal valves, including the internal vapor valves, thereby isolating the vapor system (vapor return line plus vapor manifold) from the compartments.
- c. Relieve the pressure in the vapor return line (to atmospheric pressure).

- d. Seal the vapor return line and after 5.0 minutes record the pressure present in the vapor system.

**504.4 Delivery Vessel Vapor Tightness Test:** A vapor tight condition will be determined for vessels by the following method:

- a. **Calibration:** Within 4 hours prior to monitoring, the combustible gas detector or organic vapor analyzer shall be suitably calibrated for a 20 percent LEL response, or to 10,000 ppm with methane.
- b. **Probe Distance:** The probe inlet shall be 1 inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be 1 inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within 1 inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.
- c. **Probe Movement:** The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection at a potential or actual leak source, the probe shall be positioned to locate the point of highest meter response.
- d. **Probe Position:** The probe inlet shall be positioned in the path of the vapor flow from a leak such that the central axis of the probe-tube inlet shall be positioned coaxially with the path of the most concentrated vapors.
- e. **Data Recording:** The highest detector reading and location for each incidence of detected leakage shall be recorded, along with the date and time. If no gasoline vapor is detected, that fact shall be entered into the record.